

WHAT IS CLAIMED IS:

1. An apparatus for compressing data, comprising:  
a cell site element associated with a base  
transceiver station and operable to receive a packet  
5 communicated by a mobile station and to extract a high-  
level data link control (HDLC) payload from the packet,  
wherein the cell site element is further operable to  
perform a compression process on the HDLC payload in  
order to reduce a number of bytes associated with the  
10 packet, the cell site element being further operable to  
build a key that maps the HDLC payload associated with  
the packet to the key, the key being broken into segments  
that are positioned into a selected one or more of a  
source internet protocol (IP) address field, a user  
15 datagram protocol (UDP) source port field, and a UDP  
destination port field of a UDP packet, the UDP packet  
being sent to a routing functionality of the cell site  
element such that it may be directed to a next  
destination.

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2. The apparatus of Claim 1, wherein the cell site  
element is operable to construct the UDP packet, and  
wherein remaining fields of the HDLC payload may be  
copied and positioned into a payload field of the UDP  
25 packet.

3. The apparatus of Claim 1, further comprising:  
an aggregation node associated with a base station  
controller and operable to receive a point to point  
30 protocol (PPP) over HDLC packet that corresponds to the  
UDP packet from the cell site element.

4. The apparatus of Claim 1, wherein the routing  
functionality receives the UDP packet and selects an  
outgoing interface to direct the packet, the outgoing  
5 interface operable to add a layer-two encapsulation and  
to perform a layer-two compression operation on the UDP  
packet.

5. The apparatus of Claim 4, wherein the routing  
10 functionality implements a compressed UDP (cUDP) and a  
PPP multiplex protocol in order to compress the UDP  
packet.

6. The apparatus of Claim 5, wherein the UDP  
15 packet may be demultiplexed into one or more individual  
cUDP packets.

7. The apparatus of Claim 6, further comprising:  
a cUDP compressor operable to utilize one or more  
20 context IDs in order to resolve them into a UDP/IP header  
such that an original source IP field and original UDP  
source and destination fields may be restored for a  
reconstructed HDLC packet.

8. A method for compressing data, comprising:  
receiving a packet communicated by a mobile station;  
extracting a high-level data link control (HDLC)  
payload from the packet;

5 performing a compression process on the HDLC payload  
in order to reduce a number of bytes associated with the  
packet;

building a key that maps the HDLC payload associated  
with the packet to the key, the key being broken into  
10 segments that are positioned into a selected one or more  
of a source internet protocol (IP) address field, a user  
datagram protocol (UDP) source port field, and a UDP  
destination port field of a UDP packet; and

communicating the UDP packet to a routing  
15 functionality such that it may be directed to a next  
destination.

9. The method of Claim 8, further comprising:  
constructing the UDP packet, wherein remaining  
20 fields of the HDLC payload may be copied and positioned  
into a payload field of the UDP packet.

10. The method of Claim 8, further comprising:  
receiving a point to point protocol (PPP) over HDLC  
25 packet that corresponds to the UDP packet.

11. The method of Claim 8, wherein the routing  
functionality receives the UDP packet and selects an  
outgoing interface to direct the packet, the outgoing  
30 interface operable to add a layer-two encapsulation and  
to perform a layer-two compression operation on the UDP  
packet.

12. The method of Claim 8, further comprising:  
implementing a compressed UDP (cUDP) and a PPP  
multiplex protocol in order to compress the UDP packet.

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13. The method of Claim 12, further comprising:  
demultiplexing the UDP packet into one or more  
individual cUDP packets.

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14. The method of Claim 13, further comprising:  
utilizing one or more context IDs in order to  
resolve them into a UDP/IP header such that an original  
source IP field and original UDP source and destination  
fields may be restored for a reconstructed HDLC packet.

15. A system for compressing data, comprising:  
means for receiving a packet communicated by a  
mobile station;  
means for extracting a high-level data link control  
5 (HDLC) payload from the packet;  
means for performing a compression process on the  
HDLC payload in order to reduce a number of bytes  
associated with the packet;  
means for building a key that maps the HDLC payload  
10 associated with the packet to the key, the key being  
broken into segments that are positioned into a selected  
one or more of a source internet protocol (IP) address  
field, a user datagram protocol (UDP) source port field,  
and a UDP destination port field of a UDP packet; and  
15 means for communicating the UDP packet to a routing  
functionality such that it may be directed to a next  
destination.

16. The system of Claim 15, further comprising:  
20 means for constructing the UDP packet, wherein  
remaining fields of the HDLC payload may be copied and  
positioned into a payload field of the UDP packet.

17. The system of Claim 15, further comprising:  
25 means for receiving a point to point protocol (PPP)  
over HDLC packet that corresponds to the UDP packet.

18. The system of Claim 15, wherein the routing  
functionality receives the UDP packet and selects an  
outgoing interface to direct the packet, the outgoing  
5 interface operable to add a layer-two encapsulation and  
to perform a layer-two compression operation on the UDP  
packet.

19. The system of Claim 15, further comprising:  
10 means for implementing a compressed UDP (cUDP) and a  
PPP multiplex protocol in order to compress the UDP  
packet.

20. The system of Claim 19, further comprising:  
15 means for demultiplexing the UDP packet into one or  
more individual cUDP packets.

21. The system of Claim 20, further comprising:  
means for utilizing one or more context IDs in order  
20 to resolve them into a UDP/IP header such that an  
original source IP field and original UDP source and  
destination fields may be restored for a reconstructed  
HDLC packet.

22. Software for compressing data, the software being embodied in a computer readable medium and comprising code such that when executed is operable to:

5       receive a packet communicated by a mobile station;  
      extract a high-level data link control (HDLC) payload from the packet;

      perform a compression process on the HDLC payload in order to reduce a number of bytes associated with the packet;

10       build a key that maps the HDLC payload associated with the packet to the key, the key being broken into segments that are positioned into a selected one or more of a source internet protocol (IP) address field, a user datagram protocol (UDP) source port field, and a UDP  
15       destination port field of a UDP packet; and

      communicate the UDP packet to a routing functionality such that it may be directed to a next destination.

20       23. The medium of Claim 22, wherein the code is further operable to:

      construct the UDP packet, wherein remaining fields of the HDLC payload may be copied and positioned into a payload field of the UDP packet.

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      24. The medium of Claim 22, wherein the code is further operable to:

      receive a point to point protocol (PPP) over HDLC packet that corresponds to the UDP packet.

25. The medium of Claim 22, wherein the routing  
functionality receives the UDP packet and selects an  
outgoing interface to direct the packet, the outgoing  
5 interface operable to add a layer-two encapsulation and  
to perform a layer-two compression operation on the UDP  
packet.

26. The medium of Claim 22, wherein the code is  
10 further operable to:  
implement a compressed UDP (cUDP) and a PPP  
multiplex protocol in order to compress the UDP packet.

27. The medium of Claim 22, wherein the code is  
15 further operable to:  
demultiplex the UDP packet into one or more  
individual cUDP packets.

28. The medium of Claim 22, wherein the code is  
20 further operable to:  
utilize one or more context IDs in order to resolve  
them into a UDP/IP header such that an original source IP  
field and original UDP source and destination fields may  
be restored for a reconstructed HDLC packet.